

## 4. COMMERCIAL PROGRESS OF SPINOFF TECHNOLOGIES

Chapter 3 documented the commercial progress of the energy conservation and supply technologies supported by ERIP. This chapter focuses on commercial activities that have resulted in part, or in total, from completion of an ERIP project, but that do not involve the ERIP technology as defined in the original invention disclosure to NIST. These spinoff activities are often serendipitous by-products—they were unplanned, unforeseen, and unintended when the ERIP project was initially conceived. Nevertheless, they represent tangible benefits that have accrued from the Program.

### 4.1 DEFINITION AND CLASSIFICATION OF SPINOFF TECHNOLOGIES

The term "spinoff" has acquired a number of meanings in the technology transfer literature, as reviewed by Brown and Wilson (1993). One frequently encountered use of the term refers to the creation of firms organized to pursue the private development of a technology initially supported by a government agency, a university, or a corporation (e.g., Kiesche, 1992; Parry, 1986; Gerwin, Kumar, and Pal, 1992). This use of the term focuses on the corporate control of the technology, which may pass through different business units on its way to an array of markets.

The term "spin-off" is also often used to refer to any commercialization of a government-funded R&D project (e.g., Gottinger, 1993; Herdan, 1987; Luchsinger and Van Blois, 1989). This definition is common in the context of military and space R&D, where a case can be made that any commercial product is a spinoff in that it is an alternative application of the original technology. It has also been used to describe the transfer of technologies developed at national laboratories to industry for applications different than those for which they were originally intended (Morone and Ivins, 1982).

Our definition of spinoff activities differs somewhat from both of the above concepts. For the purposes of this evaluation, a spinoff from an R&D project is "any technology development or market application that occurred as the result of the ERIP project and was not the technology or market that the original project addressed." Thus, it does not refer to the intended commercial product resulting from the ERIP project, and it may or may not involve the offshoot or creation of a new business unit.

The fact that spinoffs are distinct from the technology or market that the original project addressed forms the basis of a classification of spinoffs that distinguishes between alternative market applications and second-generation technologies.

- (1) Alternative market applications occur when the results of an R&D project are subsequently applied to a market or use that differs from the originally intended application.